

Appl. No. 10/599,539  
Amdt. Dated December 28, 2010  
Reply to Final Office Action of September 1, 2010

Attorney Docket No. 374611-000575  
Customer No. 73230

REMARKS/ARGUMENTS:

Claim 1 is amended. New claim 23 is added. Claims 1-3, 5, 6, 8-10, 13, 14, and 17-23 are pending in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

INTERVIEW SUMMARY:

On December 22, 2010, Patent Agent Barry Shuman conducted a telephone interview with Examiner Allison Bourke. During the interview the parties discussed the Office Action dated September 1, 2010. Specifically, a proposed amendment to claim 1 was discussed and how this amendment was believed to overcome the 112 and 103 rejections. The Examiner indicated that the proposed amendment would overcome the 112 rejection, and the Examiner suggested a further amendment that would differentiate the present invention from the cited references and would overcome the 103 rejections. However, an updated search would be required.

Applicant would like to thank Examiner Allison Bourke for the courtesy of granting an interview with Patent Agent Barry Shuman.

CLAIM REJECTIONS UNDER 35 U.S.C. § 112:

Claims 1-3, 5, 6, 8-10, 13, 21, and 22 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Office states regarding claim 1, it is unclear if the surface electrode is the at least three surface bar electrodes and the plurality of finger electrodes, because the surface electrode and the at least three surface bar electrodes/plurality of finger electrodes are both on the light receiving surface.

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In response, Applicant clarified that the surface electrode comprises at least three surface bus bar electrodes and a plurality of finger electrodes. Withdrawal of this rejection is thus respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103:

Claims 1-3 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Murakami (U.S. Patent No. 5,380,371). Applicant respectfully traverses this rejection. Claim 1, as amended, is as follows:

A solar cell element comprising:

a substrate for the solar cell element comprising a light receiving surface; and

a surface electrode on the light receiving surface;

wherein the surface electrode comprises at least three surface bus bar electrodes and a plurality of finger electrodes connected to adjacent surface bus bar electrodes of the at least three surface bus bar electrodes, wherein at least one of the plurality of finger electrodes is directly connected to two or more of the at least three surface bus bar electrodes, and

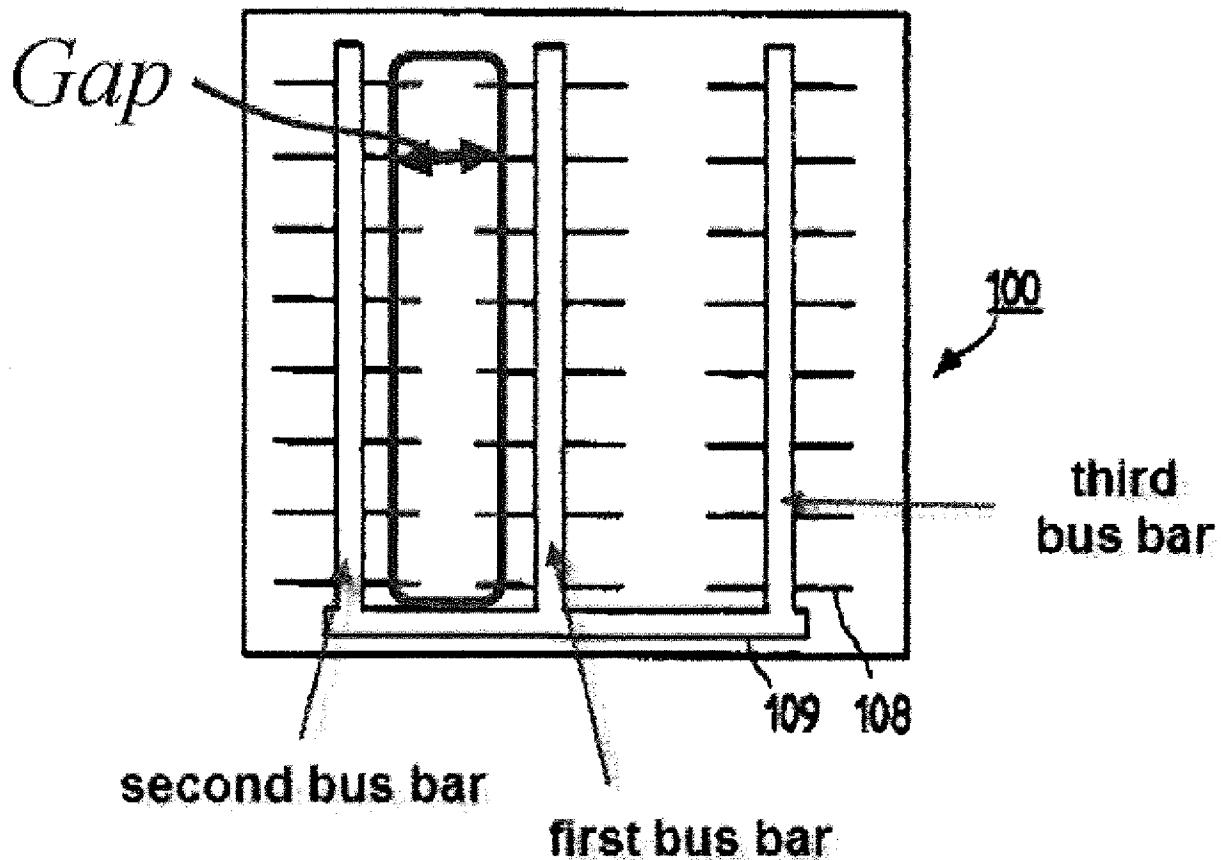
wherein each of the at least three surface bus bar electrodes has widths of not less than 0.5 mm and not more than 2 mm, and the finger electrodes have widths of not less than 0.05 mm and not more than 0.1 mm.

Applicant respectfully submits that the differences between the subject matter of claim 1 and Murakami are such that the subject matter as a whole would not have been obvious at the time the invention was made to a person of ordinary skill in the art. Applicant submits that Murakami does not teach or suggest a "solar cell element" according to claim 1 "wherein at least one of the plurality of

finger electrodes is directly connected to two or more of the at least three surface bus bar electrodes." Nor has the Office cited any other rationale or provided any other reasoned explanation on which an obviousness rejection may be made.

In Murakami (see e.g., FIG. 1C (reproduced below)), there are gaps between the finger electrodes. Consequently, in Murakami, the finger electrodes are not directly connected to two or more of the surface bus bar electrodes.

*FIG. 1C*



In light of the foregoing, Applicant respectfully submits that Murakami cannot render claim 1 obvious, because the Murakami fails to teach or suggest each

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and every claim limitation. Claims 2, 3, and 21 depend from claim 1 and therefore, cannot be rendered obvious over Murakami for at least the same reasons as claim 1. Withdrawal of this rejection is thus respectfully requested.

Claims 5, 6, and 8-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Murakami in view of Fujii et al. (U.S. Patent Application Publication No. 2003/0178057). Applicant respectfully traverses this rejection.

Claims 5, 6, and 8-10 depend from claim 1 and are therefore, patentable over Murakami for at least the same reasons discussed above. Fujii cannot remedy the defect of Murakami and is not relied upon by the Office for such. Instead, the Office cites Fujii for disclosing a solar cell (Fig. 1) with a surface electrode (4) with an opposite conductivity-type diffusion layer on the surface of the semiconductor substrate having a sheet resistance of  $60\Omega/\square$ - $300\Omega/\square$  that will have good electric properties [0027]; a solar cell having microscopic protrusions and recesses on the surface of the semiconductor substrate so as to introduce as much light incident on the solar cell as possible into the semiconductor substrate, and to trap as much light introduced into the semiconductor substrate as possible within the semiconductor substrate [0007]; and the protrusions having widths and heights of 2  $\mu\text{m}$  or less [0057] and an aspect ratio of 0.1-2 [0058] in order to shorten time of manufacturing [0057], optimize the reflectance and the susceptibility to being damaged during manufacturing [0058].

In light of the foregoing, Applicant respectfully submits that the cited references cannot render claims 5, 6, and 8-10 obvious, because the cited references fail to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

Claim 13 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Murakami in view of Hanoka et al. (U.S. Patent No. 5,476,553). Applicant respectfully traverses this rejection.

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Claim 13 depends from claim 1 and is therefore, patentable over Murakami for at least the same reasons discussed above. Hanoka cannot remedy the defect of Murakami and is not relied upon by the Office for such. Instead, the Office cites Hanoka for disclosing a solar cell connected together in series or parallel so that each module has a predetermined voltage and current output.

In light of the foregoing, Applicant respectfully submits that the cited references cannot render claim 13 obvious, because the cited references fail to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

Claim 22 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Murakami in view of Gohermann et al. (U.S. Patent No. 4,540,843). Applicant respectfully traverses this rejection.

Claim 22 depends from claim 1 and is therefore, patentable over Murakami for at least the same reasons discussed above. Gohermann cannot remedy the defect of Murakami and is not relied upon by the Office for such. Instead, the Office cites Gohermann for disclosing using bus bars (11) on the back surface of the solar cell (16), in order to allow for incident light on both sides of the cell, resulting in larger surface area available for radiation and higher efficiencies, and allows for heat radiation to pass through the cell, resulting in lower operating temperatures.

In light of the foregoing, Applicant respectfully submits that the cited references cannot render claim 22 obvious, because the cited references fail to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

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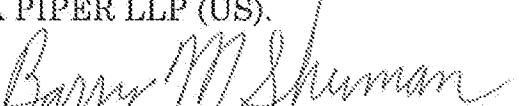
If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (310) 595-3107 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 071896.

Respectfully submitted,

DLA PIPER LLP (US).

Date: December 28, 2010

By: 

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